REMARKS

I. Introduction

In response to the Office Action dated April 23, 2004, claims 1, 5, 11, 12, 22 and 23 have been amended. Claims 1-26 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Claim Amendments

Applicant's attorney has made amendments to the claims as indicated above. These amendments were made solely for the purpose of clarifying the language of the claims, and were not required for purposes of patentability.

III. The Cited References and the Subject Invention

A. The Kelly Reference

U.S. Patent No. 6,650,869, issued November 18, 2003 to Kelly et al. disclose a system and method for managing return channel bandwidth in a two-way satellite system. A plurality of transceivers are configured to transmit backlog information over a return channel via a satellite. The backlog information specifies an amount of queued traffic for the respective transceivers. A hub is configured to receive the backlog information and to allocate a predetermined amount of return channel bandwidth to each of the plurality of transceivers. The hub determines whether additional return channel bandwidth is available to accommodate a remaining backlog such that a bandwidth allocation amount is set to a level associated with one of the plurality of transceivers having the largest backlog. The hub selectively identifies a transceiver among the plurality of transceivers having a next largest backlog based upon the determined available return channel bandwidth. The hub selectively adjusts the bandwidth allocation amount to a level associated with the transceiver with the next largest backlog. The hub allocates the additional return channel bandwidth to the plurality of transceivers based upon the adjusted bandwidth allocation amount if the adjusted bandwidth allocation amount reduces at least a portion of the backlog of the plurality of transceivers.

IV. Office Action Prior Art Rejections

In paragraphs (1)-(2), the Office Action rejected claims 1-26 under 35 U.S.C. § 102(e) as anticipated by Kelly et al., U.S. Patent No. 6,650,869 (Kelly). Applicant respectfully traverses these rejections.

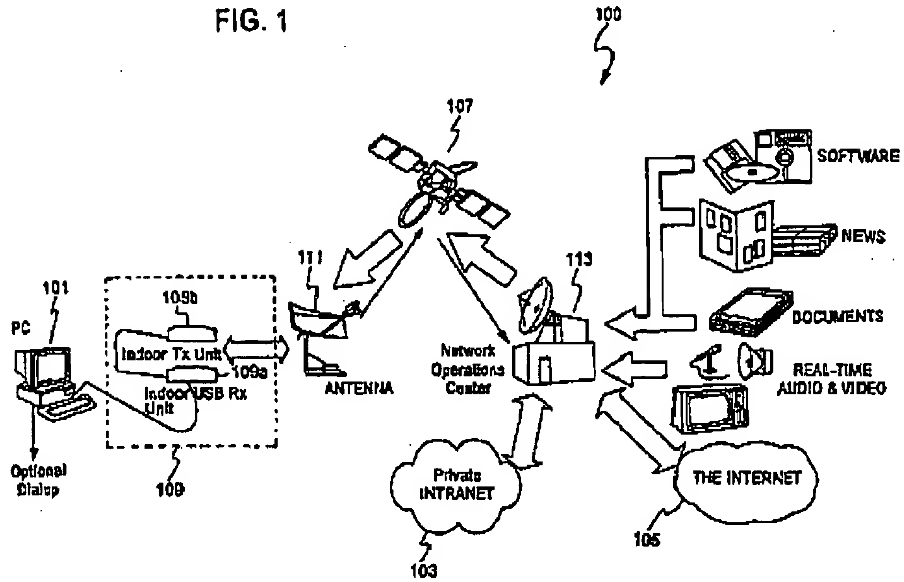
With Respect to Claims 1, 12, and 23:

Claim 1 recites:

> *In a wireless communication network transmitting digital data to a data reception device, the wireless communication network comprising a plurality of terrestrial receivers and terrestrial transmitters, each serving a service region, a method of providing at least a portion of the digital data to the data reception device, comprising the steps of:*
>
> *(a) receiving the portion of the digital data in a satellite receiver;*
>
> *(b) providing the received portion of the digital data to at least one of the terrestrial transmitters; and*
>
> *(c) transmitting the received portion of the digital data to the data reception device within the service region using the terrestrial transmitter.*

According to the Office Action, Kelly discloses a wireless communication network comprising a plurality of terrestrial receivers (111) and terrestrial transmitters (113), each serving a service region as follows:

FIG. 1



However, the foregoing does not describe a wireless communication network described in the preamble of claim 1. Even without amendment, the preamble of claim 1 recites that the terrestrial receivers and transmitters service a service region, and nothing in FIG. 1 nor anywhere else in the Kelly reference disclose a wireless communication network having terrestrial receivers and transmitters servicing a service region.

The Office Action further indicates that Kelly teaches receiving a portion of the digital data in the satellite receiver (111) as follows:

> The two-way satellite system 100 can be implemented, according to an exemplary embodiment, based upon an existing one-way broadcast system. The conventional one-way broadcast system utilizes a terrestrial link for a return channel. In contrast, the two-way satellite system 100 obviates this requirement. However, the user terminal 101 may optionally retain the dial-up connection as a back-up connection to the Internet 105.
>
> According to one embodiment of the present invention, the two-way satellite system 100 offers the following services to the user terminal 101: digital package multicast delivery, multimedia services, and Internet access. Under the digital package delivery service, the system 100 offers a multicast file transfer mechanism that allows any collection of PC files to be reliably transferred to a collection of transceivers. The IP multicast service carries applications, such as video, audio, financial and news feed data, etc., for broadcast to the transceivers (e.g., 109). As already discussed, the system 100 provides high-speed, cost-effective Internet access.
>
> To receive the broadcast from system 100, PC 101 may be equipped with a standard USB (Universal Serial Bus)

> adapter (not shown) and a 21-inch elliptical antenna 111. The system 100, according to one embodiment, uses a Ku-(or Ka-) band transponder to provide up to a 45 Mbps DVB-compliant broadcast channel from the NOC 113. Further, data encryption standard (DES) encryption-based conditional access can be utilized to ensure that the PC 101 may only access data that the PC 101 is authorized to receive.
>
> In accordance with an embodiment of the present invention, the USB adapter may be attached to IRU 109a, which is connect to ITU 109b. The data is passed from the PC 101 to the USB adapter of the PC 101, which formats the data for transmission and provides both the control and data for the ITU 109a. The ITU 109a sends the data to an outdoor unit (ODU), which includes antenna 111, at the appropriate time for the data to be transmitted in TDMA bursts to equipment at the NOC 113. In this example, when averaged across a year, each two-way transceiver is expected to have a bit-error rate less than 10.sub.-10 more than 99.5% of the time whereby a single bit error causes the loss of an entire frame. The transceiver is more fully described later with respect to FIG. 3. (col. 5, line 38 - col. 6, line 14)

However, this does not teach receiving a *portion* of the digital data transmitted by the *wireless communication network* in a *satellite receiver*. Claim 1 recites both a terrestrial receiver and a satellite receiver ... two *different* elements. At best, Kelly discloses one or the other, but certainly not both. The Office Action errs when it refers to item 111 as both a terrestrial receiver and a satellite receiver. Hence, since both a terrestrial receiver and a satellite receiver are not disclosed by Kelley, the feature of receiving the portion of the digital data in a satellite receiver (data within prior art systems is *all* received by a terrestrial receiver) is not taught by Kelly.

The Office Action further indicates that item 113 in FIG. 1 is a *terrestrial transmitter* and that the step of *providing the received portion of the digital data to at least one of the terrestrial transmitters* is taught as follows:

> Essentially, the system 100 provides bi-directional satellite transmission channels. The downlink channel from NOC 113 to the transceiver 109 may be a DVB (Digital Video Broadcast)-compliant transport stream. The transport stream may operate at symbol rates up to 30 megasymbols per second; that is, the transport stream operates at bit rates up to 45 Mbps. Within the transport stream, the IP traffic is structured using multiprotocol encapsulation (MPE). One or more MPEG PIDs (Program IDs) are used to identify the IP (Internet Protocol) traffic. In addition, another PID is used for the framing and timing information.
>
> The uplink channel from the transceiver 109 to the NOC 113 includes multiple carriers, each operating at speeds of 64 kbps, 128 kbps, or 256 kbps, for example. Each of these carriers is a TDMA (Time Division Multiple Access) stream, which employs several transmission schemes. Upon first use of user equipment, tools may be employed to provide initial access and to request further bandwidth as required. The specific bandwidth allocation scheme may be designed to ensure maximum bandwidth efficiency (i.e., minimal waste due to unused allocated bandwidth), and minimum delay of return channel data. Further, the scheme is be tunable, according to the mixture, frequency, and size of user traffic.
>
> The two-way satellite system 100 can be implemented, according to an exemplary embodiment, based upon an existing one-way broadcast system. The conventional one-way broadcast system utilizes a terrestrial link for a return channel. In contrast, the two-way satellite system 100 obviates this requirement. However, the user terminal 101 may optionally retain the dial-up connection as a back-up connection to the Internet 105.

> According to one embodiment of the present invention, the two-way satellite system 100 offers the following services to the user terminal 101: digital package multicast delivery, multimedia services, and Internet access. Under the digital package delivery service, the system 100 offers a multicast file transfer mechanism that allows any collection of PC files to be reliably transferred to a collection of transceivers. The IP multicast service carries applications, such as video, audio, financial and news feed data, etc., for broadcast to the transceivers (e.g., 109). As already discussed, the system 100 provides high-speed, cost-effective Internet access.
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> To receive the broadcast from system 100, PC 101 may be equipped with a standard USB (Universal Serial Bus) adapter (not shown) and a 21-inch elliptical antenna 111. The system 100, according to one embodiment, uses a Ku-(or Ka-) band transponder to provide up to a 45 Mbps DVB-compliant broadcast channel from the NOC 113. Further, data encryption standard (DES) encryption-based conditional access can be utilized to ensure that the PC 101 may only access data that the PC 101 is authorized to receive.
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> In accordance with an embodiment of the present invention, the USB adapter may be attached to IRU 109a, which is connect to ITU 109b. The data is passed from the PC 101 to the USB adapter of the PC 101, which formats the data for transmission and provides both the control and data for the ITU 109a. The ITU 109a sends the data to an outdoor unit (ODU), which includes antenna 111, at the appropriate time for the data to be transmitted in TDMA bursts to equipment at the NOC 113. In this example, when averaged across a year, each two-way transceiver is expected to have a bit-error rate less than 10.sub.-10 more than 99.5% of the time whereby a single bit error causes the loss of an entire frame. The transceiver is more fully described later with respect to FIG. 3. (col. 5, line 15 - col. 6, line 14)

However, the foregoing does not refer to a "terrestrial transmitter", but rather, something analogous to a satellite transmitter. Further, claim 1 recites that the *received portion of the digital data* (that which was received by the satellite receiver) is transmitted. Nothing in the above-cited portion of Kelly teaches this feature.

Finally, the Office Action suggests that the foregoing passages of Kelly teach transmitting the received portion of the digital data to the user (now amended to read "data reception device". The Applicant respectfully disagrees, because even if item 113 were analogous to the terrestrial transmitter described in claim 1, it doe s not transmit the *received portion of the digital data to the data reception device within the service region using the terrestrial transmitter*, as recited in claim 1.

For all of the foregoing reasons, the rejection of claim 1 is respectfully traversed.

Claims 12 and 23 recite features analogous to those of claim 1 and are patentable for the same reasons.

<u>With Respect to Claim 3, 14, and 24</u>: Claims 3, 14, and 24 recite that the wireless communication network is a cellular telephone network. As discussed above, FIG. 1 of the Kelly reference does not disclose a cellular telephone network augmented by transmission and reception of data via a satellite receiver. Kelly, at best, discloses that the user terminal 101 can be a cellphone,

as well as a PC or a PDA. That itself does not render the system shown in FIG. 1 a cellphone network. Further, even if the system of FIG. 1 was a cellphone network, where does Kelly disclose the satellite receiver?

With Respect to Claims 4 and 15: Claim 4 recites the steps of:

> *determining if a transmission requirement of the digital data exceeds a capacity of the wireless communication network; and*
>
> *performing steps comprising steps (a) through (c) only if the transmission requirements of the digital data exceed the capacity of the wireless communication network.*

According to the Office Action, the step of "determining if a transmission requirement of the digital data exceeds a capacity of the wireless communication network" and performing the steps described in claim 1 only if the transmission requirement exceeds a capacity of the wireless network is disclosed as follows:

> FIG. 7 shows a flow chart of the return channel bandwidth limiting process utilized in the system of FIG. 1. Bandwidth limiters are used in system 100 to ensure that a user does not monopolize bandwidth, thereby maintaining fairness in manner bandwidth is allocated. The total bandwidth allocated to a specific user may be limited by a fixed amount of bandwidth every frame. In step 701, the transceivers 109 provide the NOC 113 with information on the amount of backlog that the transceivers 109 possess. The NOC 113, as in step 703, assigns a predetermined minimum amount of bandwidth to each of the active users. This minimum value is configurable depending on the capacity of the system 100 and the number of user terminals 101. Next, the NOC 113 determines whether excess bandwidth is available, per step 705. If bandwidth is available, the NOC 113 checks whether the system can honor all of the bandwidth requirements (as indicated by the backlog information) (step 707). If there is insufficient bandwidth available to satisfy all the outstanding requests (i.e., backlog), then the NOC 113 determines the backlog that is next to the highest backlog, per step 709. It should be noted that during step 707, the users' requests using the greatest backlog as the threshold could not be met; according another threshold is defined based upon this next largest backlog value (step 111). Steps 707-711 are repeated until a threshold is reached in which some (or all) of the users' backlogs are satisfied across the entire span of users. At which time, the NOC 113 allocates bandwidth to the users, as in step 713, based upon the modified threshold. This approach advantageously ensures that all users receive a minimum amount of bandwidth before high bandwidth users are further bandwidth allocations.
>
> Alternatively, another approach to limit bandwidth is to limit protocols such as ICMP so a user cannot monopolize a channel with PINGs.
>
> FIG. 8 is a flow chart of the auto-commissioning process utilized in the system of FIG. 1. The auto-commissioning process enables the user to be on-line with the system 100 through an automated process that obtain the necessary configuration parameters for the transceiver 109 and ODU 307. The transmit path may be configured through a utility which saves transmission parameters to the PC 101, allows frame timing fine-tuning (referred to as "ranging"), and provides troubleshooting tools for the transmission portion (i.e., ITU 109b) of the transceiver 109. The system 100 provides auto-commissioning without requiring a phone line. The purpose of auto-commissioning is to prepare the system to be operational.
>
> A user may commission the two-way site with no access to a phone line or to the Internet 105. In step 801, the user installs software in the PC 101. The PC 101 executes the auto setup program, as in step 803. For example, when the user starts the setup program from a CD (compact disc), the user may enter location information. To

> be as user-friendly as possible, the information may be in terms of country, state/province (optional), and city. From this information, the PC 101 may estimate the latitude and longitude of the site and select a two-way "beacon" for the site based upon the information on the CD. The program instructs, as in step 805, the user to point the antenna to the beacon satellite using predefined pointing values. The system 100 provides a default satellite 107 and associated default transponder, whereby a user terminal 101 undergoing the commissioning process may establish communication with the NOC 113. (col. 37, line 59 - col. 38, line 53)

The foregoing teaches a system that allocates bandwidth of the return channel according to the user's backlog. It does not teach transmission via a different path (e.g. via a satellite receiver instead of the baseline wireless communication network) only when the transmission capacity of the wireless network is exceeded. The two concepts are at best only remotely similar. Accordingly, the Applicant respectfully traverses the rejection of claim 4.

Claim 15 recites features analogous to those of claim 4, and is patentable on the same basis.

V. Dependent Claims

Dependent claims 2-11, 13-22, and 24-26 incorporate the limitations of their related independent claims, and are therefore patentable on this basis. In addition, these claims recite novel elements even more remote from the cited references. Accordingly, the Applicant respectfully requests that these claims be allowed as well.

VI. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicant's undersigned attorney.

Respectfully submitted,

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